

**Abstract**

The present invention provides a structure of Metal Oxide Semiconductor Field Effect Transistor (MOSFET), which comprises a SOI (Silicon-On-Insulator) device, a MOS (Metal Oxide Semiconductor) formed on said SOI device, and a metal-silicide layer. Said SOI device includes a substrate, an insulation layer formed on said substrate, and a silicon layer formed on said insulation layer, and the MOS is formed on said SOI device. The metal-silicide layer is formed in accordance with a metal aligned process by a metal layer being deposited on said SOI device and on said MOS for reacting with said silicon layer, and an implant-to-silicide process is employed to form a high-density source region and a high-density drain region for modifying Schottky Barrier and diminishing Carrier Injection Resistance.